

REMARKS

Entry of the foregoing and reconsideration of the subject application, as amended, pursuant to and consistent with 37 C.F.R. Section 1.112, and in light of the remarks which follow, are respectfully requested.

Claims 6, 8 and 11-15 have been rejected under 35 U.S.C. Section 112, first paragraph, as failing to comply with the written description requirement. The present Amendment has rendered that rejection moot in regards to the new claims. The phrase “wherein said insects are selected from the group consisting of pecan weevils, the diaprepes root weevil, fall armyworm, fire ants, and mixtures thereof” has been incorporated into new claims 21 and 26.

In view of the above, withdrawal of the rejection of the claims under 35 U.S.C. Section 112, first paragraph is respectfully requested.

Claims 6, 8 and 11-15 have been rejected under 35 U.S.C. Section 112, first paragraph, as failing to comply with the enablement requirement. The present Amendment has rendered that rejection moot in regards to the new claims. The phrase “wherein said insects are selected from the group consisting of pecan weevils, the diaprepes root weevil, fall armyworm, fire ants, and mixtures thereof” has been incorporated into new claims 21 and 26.

Withdrawal of the rejection of the claims under 35 U.S.C. Section 112, first paragraph is respectfully requested in view of the above.

Claims 1, 3, 6, 8 and 11-15 have been rejected under 35 U.S.C. Section 112, second paragraph as being indefinite. The present Amendment has rendered that rejection moot in regards to the new claims. The phrase “having the identifying characteristics of” does not appear in the new claims.

In view of the above, withdrawal of the rejection of the claims under 35 U.S.C. Section 112, second paragraph is respectfully requested.

Claims 1, 3, 6, 8 and 11-15 have been rejected under 35 U.S.C. Section 102(b) as purportedly being anticipated by, or under 35 U.S.C. Section 103(a) as obvious over, (1) Gottwald et al. (hereinafter Gottwald) or (2) Tedders et al. (hereinafter Tedders). Those rejections are respectfully traversed.

The present invention, as embodied in new claim 16, concerns a biologically pure culture of fungus selected from the group consisting of *Beauveria bassiana* NRRL 30593, *Metarhizium anisopliae* NRRL 30594, *Beauveria bassiana* NRRL 30601, *Beauveria bassiana* NRRL 30600, and mixtures thereof.

The present invention, as embodied in new claim 21, concerns a biopesticidal composition for controlling insects, comprising an agriculturally acceptable carrier and an effective insect biopesticidal amount of at least one fungus selected from the group consisting of *Beauveria bassiana* NRRL 30593, *Metarhizium anisopliae* NRRL 30594, *Beauveria bassiana* NRRL 30601, *Beauveria bassiana* NRRL 30600, and mixtures thereof; wherein said insects are selected from the group consisting of pecan weevils, the diaprepes root weevil, fall armyworm, fire ants, and mixtures thereof.

The present invention, as embodied in new claim 26, concerns a method for controlling insects, comprising applying an effective insect biopesticidal amount of the composition according to claim 21 to said insects or to the plants, areas or substrates infested with said insects; wherein said insects are selected from the group consisting of pecan weevils, the diaprepes root weevil, fall armyworm, fire ants, and mixtures thereof.

Tedders discloses that use of strains of *Metarhizium anisopliae* in controlling pecan weevils. The strains of *Metarhizium anisopliae* were from the following locations: Lakeview, CA; Charleston, SC; Tennille, GA.

Gottwald discloses use of *Metarhizium anisopliae* in controlling pecan weevils but does not disclose which specific strains were used.

In contrast, in the present application specific strains of fungi were obtained from twenty-one pecan orchards in Arkansas, Georgia, Louisiana, and Mississippi.

The Examiner has alleged the following (page 8, Office Action): "...The strains of *M. anisopliae* appear to be identical to the presently claimed strain, based on the fact that the prior art strain is a member of the same species and has a biopesticidal effect on pecan weevil....

The Examiner has made the incredible allegation that any strains of *M. anisopliae* are identical if they are of the same species and have a biopesticidal effect on pecan weevil. The Examiner does not state the basis for such an allegation, and no such basis can be found in Tedders or Gottwald. In fact, the Examiner has provided no basis whatsoever for such sheer speculation. If the basis is the Examiner's own personal knowledge, then the Examiner is respectfully invited to submit an affidavit.

In fact, one skilled in this art would readily recognize that it is not reasonable to conclude that new fungal isolates are identical to those cited in prior references merely because they belong to the same species or have biopesticidal effects on the same insects. Isolates that are derived from geographically distinct locations are known to vary in genotypic and phenotypic characteristics. Geographically distinct isolates of Hyphomycetes fungi such as *Metarhizium anisopliae* or *Beauveria bassiana* have been shown to vary in phenotypic characters including

virulence (Shapiro-Ilan, D. I., et al., Environmental Entomology, 32: 187-195 (2003)), thermotolerance and tolerance to ultra-violet radiation (Rangel, D.E.N., et al., Journal of Invertebrate Pathology, 88: 116-125 (2005)), and pH tolerance (Padmavathi, J., et al., World Journal of Microbiology & Biotechnology, 19: 469-477. (2003)). Additionally, geographically distinct isolates of Hyphomycetes fungi (such as *Metarhizium anisopliae* or *Beauveria bassiana*) have been shown to vary genotypically (Fegan, M., et al., Journal of General Microbiology, 139: 2075-2081 (1993); Padmavathi, J., et al., Mycological Research, 107: 572-580. (2003)).

Metarhizium anisopliae NRRL 30594 was isolated from Dixie, LA. Gottwald is silent regarding where his isolate originated from, which certainly raises enablement questions. Tedders reported that the *Metarhizium anisopliae* isolates used in their study originated from the following locations: Lakeview, CA; Charleston, SC; Tennille, GA. The geographic distance between these states and Louisiana are clearly significant enough to ensure genotypic and phenotypic differences as indicated by separation of other isolates in other studies (Fegan et al. 1993; Shapiro-Ilan et al. 2003; Padmavathi et al. 2003). Furthermore, to Applicants' knowledge there are no other reported isolations of *Metarhizium anisopliae* in Louisiana prior to the present invention.

Furthermore, the claims are not obvious. The claims are based on research indicating that the novel strains of fungi are especially virulent to pecan weevils. The level of virulence in these strains is superior to other strains of the same species as indicated in Tables 1-6 and Shapiro-Ilan et al. (2003). For example, in some experiments the novel strains caused more than twice the level of pecan weevil mortality caused by a fungus strain (*Beauveria bassiana* GHA) that is

commercially labeled for pecan weevil control. It cannot be considered obvious or predictable that this level of virulence would be discovered.

Withdrawal of the rejection of the claims under 35 U.S.C. Sections 102(b) and 103(a) is respectfully requested in view of the above.

In view of the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited.

In the event that there are any questions relating to the Amendment, or to the application in general, it is respectfully requested that the undersigned be contacted so that prosecution of this application can be expedited.

Please charge any required fees pertaining to this Amendment to the Deposit Account of the undersigned, No. 50-2134, and credit any overpayment to said Account.

Respectfully submitted,

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